1.9
P69P

THE PLANT DISEASE REPORTER

LIBRARY
RECEIVED
OCT 2 1937
U. S. Department of Agriculture

Issued By

Division of Mycology and Disease Survey

Volume XXI Number 17

September 15, 1937.

BUREAU OF PLANT INDUSTRY

UNITED STATES DEPARTMENT OF AGRICULTURE

THE PLANT DISEASE REPORTER

Issued by

THE PLANT DISEASE SURVEY

DIVISION OF MYCOLOGY AND DISEASE SURVEY

Vol. XXI Number 17

September 15, 1937

IN THIS ISSUE

Anna E. Jenkins reports the known distribution of rose anthracnose in California, page 316.

Common bean mosaic was much less important in Green Refugee beans in New York this year according to James G. Horsfall, W. H. Burkholder, and O. A. Reinking, page 318. They describe a "one-sided mosaic" which seems to be new.

Charles Chupp contributes a discussion of the effect of weather conditions on vegetable diseases in New York, page 320.

The incidence of potato late blight and fusarium wilt, peach brown rot, and apple scab, in Maryland this year is reported by R. A. Jehle and E. A. Walker, page 321.

Additional reports on bacterial wilt of sweet corn have been received for northern New England and West Virginia, page 322.

August weather, page 323.

DISTRIBUTION OF ROSE ANTHRACNOSE IN CALIFORNIA

Anna E. Jenkins

When the geographic range of rose anthracnose caused by Sphaceloma rosarum (Pass.) Jenkins, was reported in 1932 [1], no record from California was available. At about that time, however, the anthracnose was observed at San Diego, San Diego County, by Prof. L. M. Massey [2], who was familiar with the disease as found in the eastern part of the United States. The rose variety affected was the highly susceptible Silver Moon, which was reported as severely attacked. Somewhat later the disease was again found at Guadaloupe, Santa Barbara County, by Professors Massey and M. W. Gardner, as shown by a specimen in the herbarium of the Department of Plant Pathology, University of California.

During July, 1937, the anthracnose was found on dooryard and garden roses in several other localities in the State. The accompanying map (fig. 43) of California based on the recent observations and those mentioned above shows the distribution of the disease. Representative specimens were gathered from the new localities as cited below:

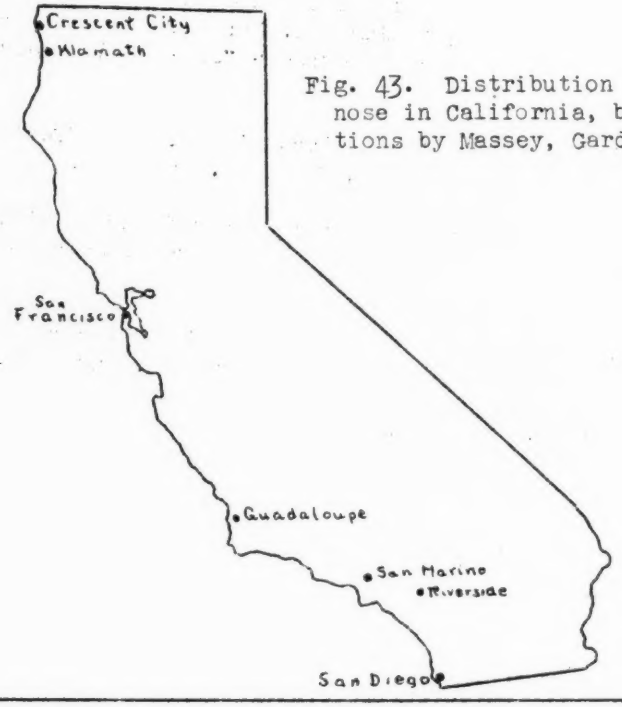

Fig. 43. Distribution of rose anthracnose in California, based on observations by Massey, Gardner, and Jenkins.

[1] Jenkins, A. E. Rose anthracnose caused by Sphaceloma. Jour. Agr. Research 45:321-337, 1932.

[2] L. M. Massey. In Plant Disease Reporter Suppl. 85, p. 74, 1933.

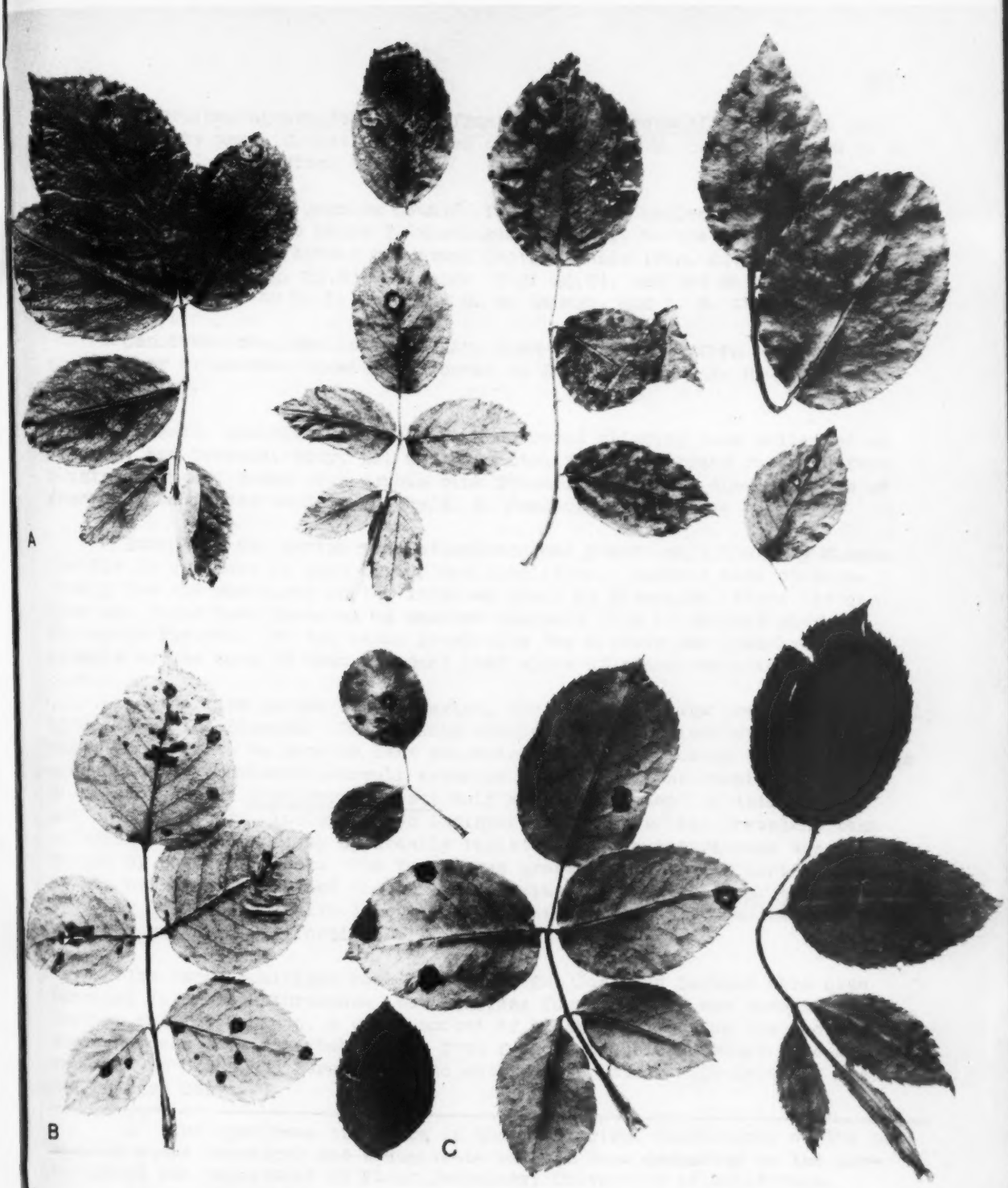

Fig. 44. Sphaceloma rosarum on leaves of Rosa sp., var. George Arends (A), Radiance (B), and Dainty Bess (C), California, July, 1937. (Slightly reduced).

Riverside, Riverside County, from a dooryard rose of the hybrid perpetual variety Maman Cochet, collected on July 12, by H. S., T. H., and R. A. Fawcett and A. E. Jenkins.

San Marino, Los Angeles County, from the rose collection in the Botanical Garden of the Henry E. Huntington Library, on the perpetual variety William F. Dreer, the hybrid perpetual George Arends (Fig. 44,A), the hybrid teas Dainty Bess (Fig. 44,B), Radiance (Fig. 44,C), and Red Radiance, collected on July 16, by O. L. Chaplin, M. E. Neuman, and A. E. Jenkins.

San Francisco, San Mateo County, from a white-flowering rose growing among other ornamental plants, collected on July 21, by B. A. Rudolph and A. E. Jenkins.

Klamath, Humboldt County, from a dooryard climbing rose collected on July 23, and Crescent City, Del Norte County, from a dooryard rose and from a large clump of roses with double pink flowers growing in the outskirts of the town, collected on July 24, by A. E. Jenkins 3/.

Except at San Marino the anthracnose was practically the only fungus trouble in evidence in most of the new localities. Lesions were comparatively few and scattered on the infected plant at Riverside, where the disease has since been detected on another dooryard rose in another place by Professor Fawcett. In the other localities the disease was readily recognizable by the more or less abundant leaf spots of characteristic appearance.

In the rose garden at San Marino, the variety George Arends was markedly affected by the disease. The lesions reached 7 mm. in diameter, and sometimes appeared to be more or less concentrically lined, owing to the numerous and unusually prominent acervuli arranged in more or less complete circles. Black spot due to Diplocarpon rosae Wolf was also present on this variety and on some others, including Red Radiance, but it was less prevalent than anthracnose. One variety apparently resistant to the anthracnose was affected by powdery mildew. The fungus was present only in its conidial stage. It has not been determined whether the species represented is S. humuli (D.C.) Burr. or S. pannosa (Wallr.) Lév. both of which previously have been reported on roses grown in California 4/.

The large municipal rose gardens at San José and Oakland were also examined for rose anthracnose, but none was found. There was some rust on leaves, and, at Oakland, a small amount of black spot, but on the whole both these gardens were remarkably free from fungous troubles. Roses were also examined at Ukiah and Eureka, and no anthracnose found. (Division of Mycology and Disease Survey.)

3/ The specimens cited are in the Mycological Collections of the Bureau of Plant Industry, and a duplicate set has been deposited in the herbarium of the Department of Plant Pathology, University of California.

4/ Smith, R. E., and E. H. Smith. California Plant Diseases. Agr. Exp. Sta., Univ. of Calif. Bull. 218, p. 1163, 1911.

DISEASES OF GREEN REFUGEE BEANS IN NEW YORK IN 1937

James G. Horsfall, W. H. Burkholder, and O. A. Reinking

During the latter part of July, 1937, a survey of bean mosaic in the State was made. The reduced amount of mosaic on Stringless Green Pod Refugee was striking. No field of 100 percent infection was observed, a strong contrast with recent years. The factors conducive to the dissemination of bean mosaic appear to have been unfavorable in 1937. Spread of mosaic in 1937 appears to have been less even than in 1936 when it was not as rapid as previously. Symptoms of the disease were normal, however. Leaves were typically downcurled and mottled. Pods were curled and hydrotic. If anything, there was more hydrosis of pods than usual.

For eight years common bean mosaic has been a serious trouble with canning Green Refugee beans in New York. By the end of July it has usually been practically 100 percent in most fields and present in all. It has curled the leaves, reduced the yield, and lowered the quality of the canned product.

One proof of the previous prevalence of mosaic in Refugee beans and its destructiveness was the widespread adoption of the new mosaic resistant types of beans developed by Pierce and Walker at the University of Wisconsin. A large number of the canners are trying either the Wisconsin Refugee or the Idaho Refugee or both. A few canners are using these beans for their whole acreage.

It was interesting, therefore, to compare the Wisconsin and Idaho Refugees with the old fashioned Refugee. Since neither of the new types showed any of the common bean mosaic, the vines were distinctly more vigorous than those of ordinary Refugee. As was expected also there was no mosaic hydrosis of the pods of Wisconsin and Idaho Refugees.

Both the Idaho Refugee and the Wisconsin Refugee, however, showed approximately 10 percent of what appears to be a new mosaic disease. This 10 percent of disease seemed to be about constant irrespective (1) of the locality in the State where the crop was grown, (2) of the seedsman from whom the stocks were obtained, and (3) of the date of planting. This disease was reported from New York in 1936 in the Reporter (Harrison, A. L. and W. H. Burkholder, Canning bean diseases in New York in 1936. Pl. Dis. Reprtr. 20:290-291. 1936).

The symptoms of this mosaic are quite characteristic. Small plants show extreme rosetting and stunting. Internodes are only a fraction of an inch long and adventitious buds are plentiful. Affected plants when viewed as a whole give a peculiar light green color.

Perhaps the most characteristic symptom is that the disease usually affects only one side of a leaf or one side of a plant. An affected leaf will usually show a light brown streak extending along one side of the petiole. The leaflet on that side may be almost completely inhibited from growth. The terminal leaflet likely is affected only on the side of the streak and the third leaflet may appear normal. The terminal leaflet in this case is characteristic. The affected portion never grows beyond the juvenile stage. Continued growth of the normal half of the leaflet causes the leaflet to curl back on itself so that the tip may touch the petiole. This gives the disease its diagnostic peculiarity and suggests the name one-sided mosaic.

One-sided mosaic also may attack only one arm of a plant, leaving the other part apparently normal. The disease seems to be more destructive to the individual plant than common mosaic is.

One-sided mosaic appears to be seedborne. This would explain its occurrence in all localities in about the same proportions. This would also explain the fact that it occurs scattered fairly uniformly over the field.

One-sided mosaic seems to spread. Plants were observed with normal foliage below, affected foliage above. Harrison and Burkholder observed a field of Wisconsin Refugee last year where approximately 30 percent of the plants were affected. That was in a year in which common mosaic spread less rapidly than normal. One wonders what the 10 percent observed this year would be if 1937 were a year of rapid spread of common mosaic. From our observations the disease has not spread into the Stringless Green Refugee, although two fields were found where Wisconsin Refugee occurs alongside. Neither has it been observed on any other varieties. Again one wonders what would be the case if factors were more conducive to spread of mosaic.

A few cases of yellow mosaic were observed, although this disease was not serious. One field of U. S. No. 1 Refugee beans was inspected. It did not show one-sided mosaic, although it was planted alongside Wisconsin Refugee. It was rather badly affected with bacterial blight. In a trial planting at the Experiment Station at Geneva, U. S. No. 5 seemed to be more susceptible to bacterial blight than ordinary Refugee, Wisconsin Refugee, or Idaho Refugee.

No anthracnose has been observed or reported this year. (New York (Geneva and Cornell) Agricultural Experiment Stations, September 10).

THE EFFECT OF TEMPERATURE AND MOISTURE ON VEGETABLE DISEASES IN NEW YORK STATE IN 1937

Charles Chupp

August was the warmest and wettest ever recorded for this month in the State. The humidity was excessive more than half the month. This condition of moisture and warmth combined are rarely met with in this State, therefore a number of interesting situations arose pertaining to vegetable diseases.

During the past twenty-five years, Cercospora concors has been reported only a few times on potatoes. This year it was collected in at least two fields and probably is present in many more. It never has been serious enough to cause commercial loss.

Ordinarily when the rainfall is greater than average, the amount of Cladosporium cucumerinum is a menace to the cucurbit crop. So far this season not one case of cucurbit scab has been reported. Apparently the temperature has been too high for the fungus to develop.

Phytophthora infestans in potatoes and tomatoes began to be rather widespread, so that an epidemic seemed imminent. Certainly there was enough moisture present for the fungus to grow. But the high night temperatures up to the present time have checked it thoroughly, except in the farthest northern part of the State.

It is not known in what way the weather affects spotted wilt on tomatoes and peppers. But variety tests were placed on two farms in different counties where the disease had been serious on California Wonder peppers for three successive years. The tests were in the same location as were the plots last year. Then, there was an almost 100 percent loss of the California Wonder peppers. This year the plots do not show a trace of the disease, nor has it been reported from any other part of the State.

In celery fields, Cercospora apii is doing an extreme amount of damage where spraying or dusting has not been practiced faithfully. Septoria blight (Septoria spp.), on the other hand, is not as abundant as usual. The high temperatures no doubt account for the presence of one and perhaps for the comparative absence of the other, although seed inoculum and July's low precipitation may have influenced the latter's absence.

Septoria cucurbitacearum during most seasons is rare on muskmelons in New York State. But this year it is statewide, and in a few fields is serious enough to cause appreciable damage. Macrosporium cucumerinum (=Alternaria cucumerina) also is far more virulent on muskmelons than usual.

In a visit to 17 farms in Albany and Schenectady counties, it was observed that the percentage of blight varied directly with the number of weeds present. The weeds evidently delayed evaporation of the dew and rains and thus aided in propagating the fungus.

Another case where weeds appeared to exert a marked influence on development of disease was observed by Dr. Newhall in certain fields of onions being grown for seed near Cortland. Where weeds were tall and abundant, Macrosporium black mold was abundant and causing many (50 percent) seed stalks to fall over prematurely. Where weeds were absent or nearly so, the seed stalks were still green and healthy the last of August.

Canners are worried because of the large number of tomatoes showing numerous ripe rot lesions (Colletotrichum phomoides). Inasmuch as this disease usually is present only to a slight extent and then near the end of the season, the present epidemic must be the result of the peculiar combination of weather conditions.

In 1928, late blight of celery, cucumber scab and late blight of potatoes appeared in epidemic form in the State. Therefore, it is interesting to compare three months of that season with the same months in 1937, and observe how slightly the average temperature and precipitation need to vary to make a completely different picture in the plant disease situation.

	1928			1937		
	Temp.	Precipitation	Humidity	Temp.	Precipitation	Humidity
June	62.5	5.86	76.3	66.1	5.21	68.5
July	70.4	2.84	76.7	71.8	1.61	66.8
August	70.6	3.04	82.5	73.5	8.14	77.7
Averages	67.8	3.91	78.5	70.5	4.99	71.0

(New York (Cornell) Agricultural Experiment Station).

PLANT DISEASES REPORTED IN MARYLAND

R. A. Jehle and E. A. Walker

Late varieties of Irish potatoes are very severely infested with late blight (Phytophthora infestans) this year in Garret County. The vines, which are normally green up to October 1 and longer, have died by August 31 and it is estimated that 90 percent of the vines are dead due to the disease. The unsprayed fields were first to show the disease, while sprayed fields are still in fair condition. Potato plants that were dusted died off soon after those unsprayed, owing to the effect of late blight. Tubers show late blight infection and about 8 to 10 percent have already rotted in the ground. Continued wet soil will allow rapid increase of tuber infection.

Reports from Somerset County, Pennsylvania, and across the Maryland line indicate similar conditions of the crop.

The severe late blight attack on potatoes this year results from inadequate number of applications and a delay in making necessary applications early in the season because of the continued wet weather during the early growing period. A month of drought in July - August devitalized the plants and a ten day excessive rain period from August 16 to 26 prevented proper spray application being made and hastened late blight activity on the vines.

Potato wilt (Fusarium sumartii and F. oxysporum) is present in the vines of the last potato crop in Garrett County to the extent of 5 to 8 percent. Irish Cobbler tubers from this region show slightly higher wilt vascular discolorization.

Peach brown rot (Sclerotinia fructicola) in the western part of Maryland was more severe than average this year. This disease was spreading rapidly in the orchard and packed fruit on account of prolonged rains during the week of August 23, which allowed the fruit to enlarge rapidly, become watery and followed by severe cracking. The Hale variety was affected about 50 percent or more. Brown rot was also greatly increased in orchards badly infested with the oriental peach moth.

Apple scab (Venturia inaequalis) is not generally as bad in Maryland this year as usual. The cold wet period during the early season allowed ascospores to discharge prior to the opening of the buds. (Maryland Agricultural Experiment Station, Sept. 12).

ADDITIONAL REPORTS ON BACTERIAL WILT OF SWEET CORN

NORTHERN NEW ENGLAND: Five days search in northern Massachusetts and in those counties of Maine and New Hampshire in which bacterial wilt was found in 1933 failed to yield even a single case of bacterial wilt. (N. E. Stevens, Sept. 3).

WEST VIRGINIA: Our extension horticulturist, Mr. Kellar, who has been in touch with the situation tells me that there has been considerably less of it this season than last year but this may be expected in part by the fact that a large number of our commercial growers have been using the cross strains. At Lakin, where a variety test was conducted this year, the susceptible Bantam was pretty badly diseased - about 50 percent - while cross-Bantam showed very little. (C. R. Orton, Sept. 11).

AUGUST WEATHER

(From Weekly Weather and Crop Bulletin for the week ending September 7, 1937).

The month of August 1937, was characterized by warm, dry weather over many parts of the Midwest, the lower Great Plains, and the Southwest, while moderate warmth and above-normal rainfall was the rule in many Atlantic Coast States.

Figure 45 shows that temperatures for the month were rather close to normal in the Middle Atlantic States and the Southeast, ranging mostly from 2° above normal to 1° below. In the Northeast the month was rather warm, with departures ranging from 4° to 6° above the seasonal average. In the upper Mississippi Valley and central and northern Great Plains the month was decidedly warm, with the plus departures ranging from 6° to as much as 11°, while in the southern Plains and the Southwest they varied from 3° to 5°. It was slightly cool for the season in the interior of the Pacific Northwest and locally in southern California.

Figure 46 shows that precipitation was moderate to heavy in the Middle Atlantic States where the rainfall for the month averaged from 50 to 100 percent greater than normal; above-normal amounts were also recorded in some parts of the southern Ohio Valley, the southern Appalachian region, and some east Gulf districts. Subnormal rainfall occurred in the Southeast and on the north Atlantic coast, the latter area having markedly subnormal amounts, with less than half the usual precipitation. In the central Mississippi Valley and western Ohio Valley rainfall was less than three-fourths of the normal, with some sections reporting less than half. Precipitation was also markedly deficient in most parts from the central and southwestern Great Plains to the Pacific coast. In this area most stations reported less than half the normal rainfall, and in western Kansas, northern and western Texas, and eastern New Mexico, the amounts were less than one-fourth the normal. Much of the western Great Basin and the lower Pacific coast had a practically rainless month, but in the Pacific Northwest the amounts were well above normal.

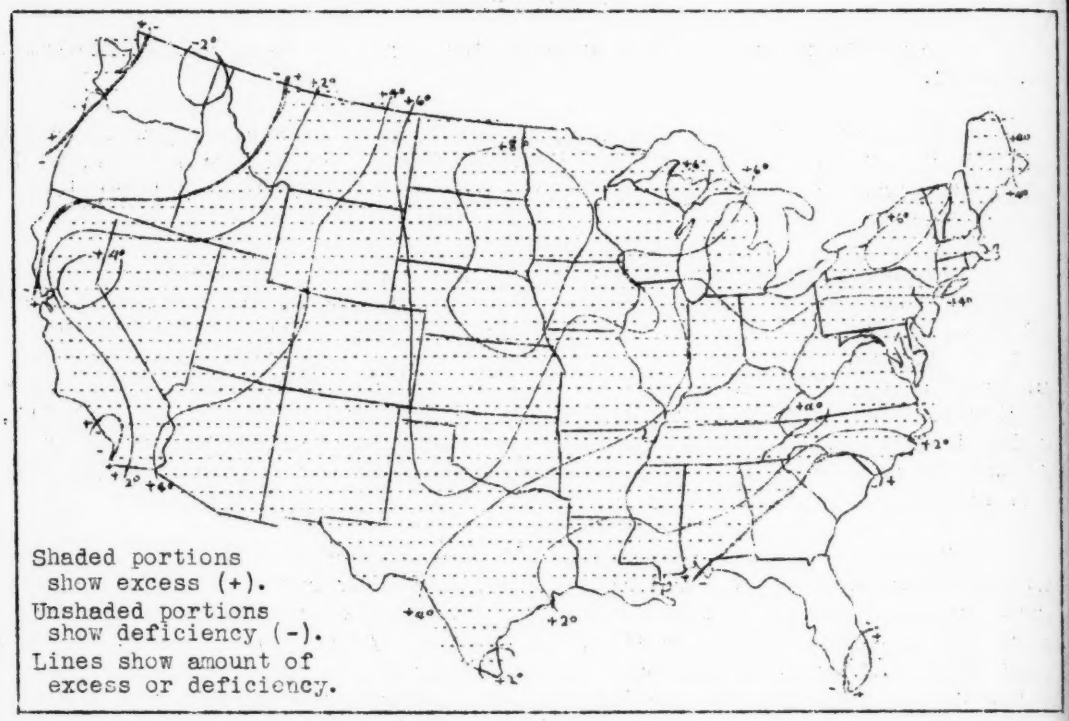

Fig. 45. Departure of Mean Temperature from the Normal for August 1937.

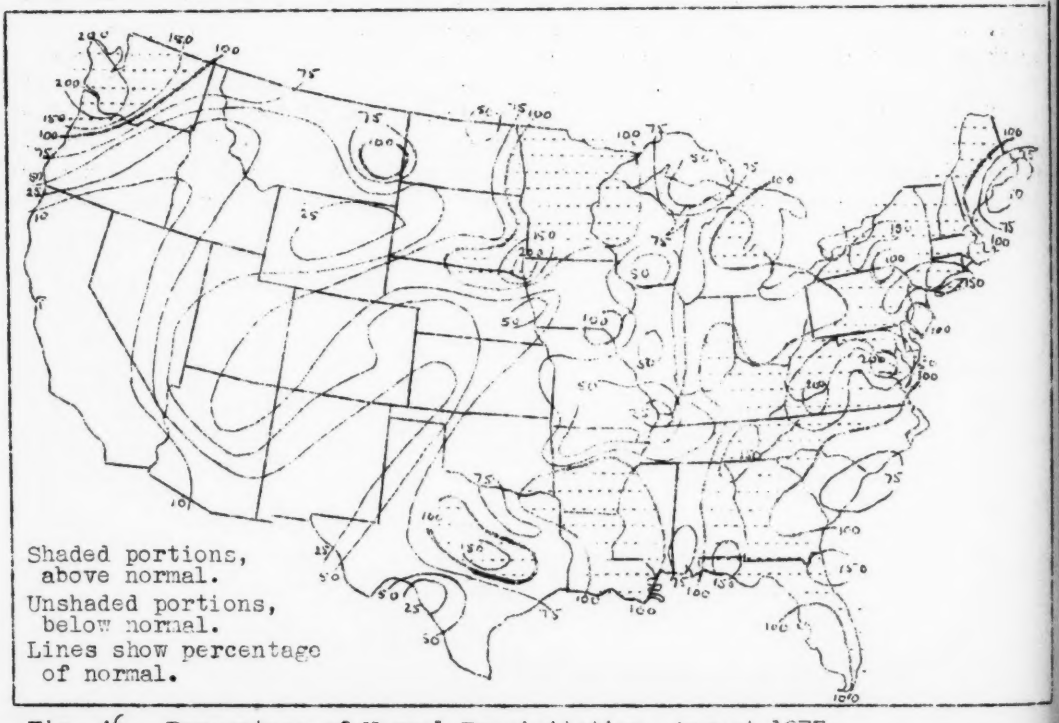

Fig. 46. Percentage of Normal Precipitation, August 1937.